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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,603	04/16/2001	Toru Ishii	2611-0143P	4400

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EXAMINER
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GRIER, LAURA A

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/834,603	<b>Applicant(s)</b> ISHII, TORU	
	<b>Examiner</b> Laura A Grier	<b>Art Unit</b> 2644	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 10 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

1. The indicated allowability of claims 6, 12 (now cancelled) and claim 8 is withdrawn in view of the newly discovered reference(s) to Sibbald et al., U. S. Patent No. 566425 in view of Hanson. The indicated allowability of claim 8 is withdrawn in view the 112 2<sup>nd</sup> rejection.

Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 8 recites the limitation "a third signal processing unit" in line 17 and the limitation "a fourth signal processing unit" in line 20. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 7, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sibbald et al., (herein, Sibbald) in view of Hanson, U. S. Patent No. 3900707.

Regarding claims 1, 7 and 15, Sibbald discloses plural-channel sound processing. Sibbald's disclosure comprises a pair of loudspeakers (58/60) and/or headphones, which receives a signal from sound sources and outputs the signal during playback to a listener, which reads on a plurality of sound wave output units, specifically the headphones, a signal processor (28) for correcting signal characteristics between the ear (head) of the user and the sound wave outputs, therein, which reads on a 1<sup>st</sup> signal processing unit, and further the signal processor includes means for compensating cross-talk (56), which indicates the characteristics including cross-talk components, therein as claimed – figures 1, 4, and 6, col. 4, lines 47-49, col.5, lines 49-64, col. 6, col. 7, lines 1-23, and col. 8, lines 51-68. However, Sibbald fails to specifically disclose a plurality of sound wave output units arranged around each ear of the user. The examiner maintains that such sound wave output units were well known in the art.

Regarding the sound wave output units, in a similar field, Hanson discloses a speaker apparatus. Hanson's disclosure comprises a four channel stereo, with a pair of left (28/31) and right (37/39) speaker units (col. 2, lines 44-46, 59-65).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Hanson by implementing headphones with a plurality of speakers in each earpiece/earcup for the purpose providing sound reproduction in a realistic quadraphonic manner.

Regarding claim 2, Sibbald and Hanson disclose everything claimed as applied above (see claim 1). Sibbald and Hanson (Sibbald) inherently disclose a holding unit, therein, as evident by the fact of the use of the headphones.

Regarding claim 4, Sibbald and Hanson disclose everything claimed as applied above (see claim 1). Sibbald and Hanson (Sibbald) discloses the use of a real head or an artificial head and microphones (abstract, col. 4, lines 16-27), which reads on a plurality of detection units positioned in the vicinity of the head of a human body or a simulated head, therein.

Regarding claim 5, Sibbald and Hanson disclose everything claimed as applied above (see claim 1). Sibbald and Hanson (Sibbald) disclose filters (34), which are used for binaural synthesis on the received signal to be output by the sound wave output units, which reads on a 2<sup>nd</sup> signal processing unit – col. 4, lines 60-col. 5, lines 31).

Regarding claim 10, Sibbald and Hanson disclose everything claimed as applied above (see claim 1). Sibbald and Hanson (Sibbald) inherently discloses the sound wave outputs arranged around each ear in respect to the position of the corresponding sound inputs, as evident by the three-dimensional sound is played through the speakers and/or headphones (col. 8, lines 35-39, col. 7, lines 38-50).

7. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sibbald and Hanson.

Regarding claim 3, Sibbald discloses plural-channel sound processing. Sibbald's disclosure comprises a pair of loudspeakers (58/60) and/or headphones, which receives a signal from sound sources and outputs the signal during playback to a listener, which reads on a

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plurality of sound wave output units, especially headphones; a signal processor (28) for correcting signal characteristics between the ear (head) of the user and the sound wave outputs, therein, which reads on a 1<sup>st</sup> signal processing unit, and further the signal processor includes means for compensating cross-talk (56), which indicates the characteristics including cross-talk components, therein as claimed – figures 1, 4, and 6, col. 4, lines 47-49, col.5, lines 49-64, col. 6, col. 7, lines 1-23, and col. 8, lines 51-68. However, Sibbald fails to specifically disclose at least four sound wave output units.

Regarding four sound wave output units, in a similar field, Hanson discloses a speaker apparatus. Hanson's disclosure comprises a four channel stereo, with a pair of left (28/31) and right (37/39) speaker units (col. 2, lines 44-46, 59-65), which reads on at least four sound wave output units, therein as claimed.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Hanson by implementing headphones with a plurality of speakers in each earpiece/earcup for the purpose providing sound reproduction in a realistic quadraphonic manner.

Regarding claim 8, Sibbald discloses plural-channel sound processing. Sibbald's disclosure comprises a pair of loudspeakers (58/60) and/or headphones, which receives a signal from sound sources and outputs the signal during playback to a listener, which reads on a plurality of sound wave output units, specifically the headphones, a signal processor (28) for correcting signal characteristics between the ear (head) of the user and the sound wave outputs, therein, which reads on a 1<sup>st</sup> signal processing unit, and further the signal processor includes means for compensating cross-talk (56), which indicates the characteristics including cross-talk

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components, therein as claimed – figures 1, 4, and 6, col. 4, lines 47-49, col.5, lines 49-64, col. 6, col. 7, lines 1-23, and col. 8, lines 51-68. However, Sibbald fails to specifically disclose at least four sound wave output units.

Regarding four sound wave output units, in a similar field, Hanson discloses a speaker apparatus. Hanson's disclosure comprises a four channel stereo, with a pair of left (28/31) and right (37/39) speaker units (col. 2, lines 44-46, 59-65), which reads on at least four sound wave output units, therein as claimed.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Hanson by implementing headphones with a plurality of speakers in each earpiece/earcup for the purpose providing sound reproduction in a realistic quadraphonic manner.

However, Sibbald and Hanson fails to specifically disclose the 1<sup>st</sup> further comprising signal processing units, therein as claimed to correct the characteristics between the sound wave units and ears and head of the users, respectively for the left and right ears. However, it would have been obvious to one of the ordinary skill at the time the invention was made to modify the invention of Sibbald and Hanson by implementing multiple means of compensating crosstalk for a plurality of loudspeakers (sound wave outputs) simultaneously for the purpose of preventing distortion or unwanted interference among the signals produced by the plurality of speakers (sound wave outputs).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sibbald.

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Regarding claim 6, Sibbald discloses plural-channel sound processing. Sibbald's disclosure comprises a pair of loudspeakers (58/60) and/or headphones, which receives a signal from sound sources and outputs the signal during playback to a listener, which reads on a plurality of sound wave output units, a signal processor (28) for correcting signal characteristics between the ear (head) of the user and the sound wave outputs, therein, which reads on a 1<sup>st</sup> signal processing unit, and further the signal processor includes means for compensating cross-talk (56), which indicates the characteristics including cross-talk components, therein as claimed; further Sibbald discloses a loudspeaker positioned at the apex of a triangle (col. 6, lines 21-30) – figures 1, 4, and 6, col. 4, lines 47-49, col.5, lines 49-64, col. 6, col. 7, lines 1-23, and col. 8, lines 51-68. However, Sibbald fails to specifically disclose at least eight sound wave outputs.

The examiner takes official notice that a plurality sound wave outputs positioned around a listener was well known in the art. Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Sibbald by providing a desired number of sound wave output units (at least eight) to be positioned symmetrical about the head (ears) of a listener in a conventional manner to obtain a stereophonic listening experience as desired.

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-8, 10 and 15 have been considered but are moot in view of the new ground(s) of rejection.

The applicant essential argues that references, McGrath and Weffer, used in the 35 U.S.C. 103(a) rejection failed to provided suggestion of motivation in respect to the independent



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claim 1. The McGrath reference is withdrawn in respect to its specific teachings in head tracking.

The Weffer reference was merely used to provide teachings of a plurality of speakers in a headphone apparatus to support the headphones taught in McGrath. Thus, the McGrath and Weffer rejection is withdrawn in respect to a better teaching reference of the claimed invention of Sibbald et al. which teaches the claimed invention, correcting characteristics between the sound wave output units and head of a listener, in respect to crosstalk cancellation for use with loudspeakers and headphones

### *Conclusion*

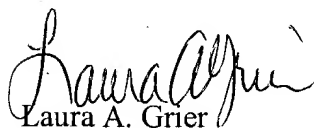
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Laura A. Grier  
11-9-04

  
XU MEI  
PRIMARY EXAMINER